1856MNRAS..16..148S

disclosing itself even to accurate measures. My measures, however, have been executed at sufficiently different hours to make such a concealment of the fluctuations almost impossible, and it is not probable that the errors of my measures have followed with precisely the same magnitude the same period in an opposite direction as the change which Secchi thought he had discovered in the major axis of the ring of *Saturn.* I hope to execute under a better condition of the atmosphere more complete and more accurate measures of *Saturn*, but the result of this preliminary inquiry appeared to me sufficiently interesting to communicate it briefly to you.

"*Leyden, April* 3, 1856."

Occultations Observed at the R.N. College, Portsmouth, by Capt. Shadwell, R.N.

1856				M.T. Portsmouth. h m s
Feb. 16	45 Geminorum	Mag. 6	Immersion. Dark Limb	11 52 36
Mar. 11	33 Tauri	Mag. 6	Immersion. Dark Limb	9 27 54
,, 13	136 ,,	Mag. 4½	Immersion. Dark Limb	8 48 31
,, 26	α Scorpii	Mag. 1½	Immersion. Bright Limb	15 20 50·5
			Emersion. Dark Limb	16 39 50·5

All good observations. In the case of *α Scorpii*, the star at the immersion appeared to hang on the moon's limb for about two seconds; the time recorded is that of final disappearance. The reappearance was instantaneous.

Note on a presumed Occultation of a Star by Saturn.

By Frederick Brodie, Esq.

"On 30th January observed *Saturn*, and was surprised to find that there were apparently four satellites plainly visible interior to *Titan.* I could glimpse a fifth occasionally. After a period of 2½ hours, I perceived that the one nearest the planet, then about 30″ distant from the edge of the ball, had not moved, but rather approached the planet; while the satellite next to it, *Tethys*, had altered its position with respect to it nearly 90°. I suspected it therefore to be a star, its brightness and magnitude coinciding exactly with one of the interior satellites.

"On 31st January I observed this supposed star about 100″ distant from the edge of the ball of *Saturn* but on the opposite side; the satellites, *Enceladus, Tethys, Dione, Rhea*, were visible, and in the respective proper positions due to their daily revolutions. This star had been occulted by the planet during the inter-

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val between the observations; but such occultation would not have been visible in England, as the planet would have set, before the immersion took place.

" The apparent magnitude of the star was 9 to 10.

" *Eastbourne, Feb.* 7, 1856."

Notes on an Occultation of a Star by Saturn.

By the Rev. W. R. Dawes.

(*Extracts of Letters to the Astronomer Royal.*)

" Last evening, on turning my equatoreally-mounted telescope upon *Saturn*, I perceived a small fixed star on the preceding side of the planet, and almost precisely in the line of the major axis of the ring produced. Allowing for the brilliancy of *Saturn*, I estimated it be of the 9th magnitude. It was distant from the western extremity of the ring about 40″. The third satellite, *Tethys*, was very near its greatest elongation on the same side.

" As it appeared evident that an occultation must happen, I measured with the wire micrometer the difference of R.A. of the star and the western extremity of the ring; and from this, and *Saturn's* daily motion in R.A., I found that the G.M. time of occultation by the ring would be about 15^{h} 6^{m}. Having also observed the difference of N.P.D. of the star and the most southerly point of the edge of the ring (considerably to the west of the southern extremity of its minor axis), I found from this and the daily motion in N.P.D., the difference of N.P.D. at the expected time of occultation. The threads of the micrometer having been set to include this difference of N.P.D., and placed equatoreally, the southern thread was made to touch the southern point of the ring; and the other consequently showed, with sufficient exactness, the point on the edge of the ring where the occultation would take place, and also indicated the path of the star behind the planet. It thus became evident that the star would disappear a little to the south of the western extremity of the major axis; and that it would not make its appearance at all in the interval between the ring and the planet, but would just graze the southern edge of it; allowance being made for the northward motion of *Saturn*, amounting to about 0″·18 in an hour. Though the interest of the phenomenon was thus greatly diminished, I thought it worth while to observe the occultation with the view of ascertaining whether so small a star would continue to be distinctly visible up to the very edge of the ring; and also, with some hope, that if the planet should be sufficiently well seen when about 7^{h} west of the meridian, the star might appear between the bright rings.

" At 11^{h} 25^{m}, G.M.T., *Tethys* was very nearly south of the star, and at a distance of about 5″. The star was estimated to be rather brighter than the fifth satellite, *Rhea*.

" At 14^{h} 50^{m}, G.M.T., *Saturn* had approached very close to

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